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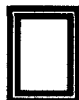


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# **Five-year Review Report**

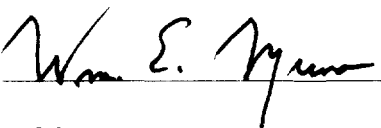
**First Five-Year Review Report  
For  
South Andover Salvage Yard  
Andover  
Anoka County, Minnesota**

**September 2001**

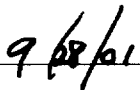
**PREPARED BY:  
United States Environmental Protection Agency  
Region 5  
Chicago, Illinois**

Approved by:

Date:

  
\_\_\_\_\_

William Munro  
Superfund Division Director  
U.S. EPA Region 5

  
\_\_\_\_\_

## **List of Acronyms**

ARAR Applicable or Relevant and Appropriate Requirement  
CAMU Corrective Action Management Unit  
CD Consent Decree  
CERCLA Comprehensive Environmental Response, Compensation, and Liability Act  
EPA United States Environmental Protection Agency  
CFR Code of Federal Regulations  
DEQE Massachusetts Department of Environmental Quality Engineering  
ESD Explanation of Significant Difference  
MADEP Massachusetts Department of Environmental Protection  
MCL Maximum Contaminant Level  
MCLG Maximum Contaminant Level Goal  
NCP National Contingency Plan  
NPL National Priorities List  
O&M Operation and Maintenance  
OU Operable Unit  
PAH Polyaromatic Hydrocarbon  
PCB Polychlorinated Biphenyl  
PCOR Preliminary Close Out Report  
PRP Potentially Responsible Party  
PSD Performing Settling Defendant  
RA Remedial Action  
RAO Remedial Action Objective  
RD Remedial Design  
RI/FS Remedial Investigation/Feasibility Study  
ROD Record of Decision  
SDWA Safe Drinking Water Act  
VOC Volatile Organic Compound

## **Executive Summary**

The remedy for South Andover Salvage Yards, Andover, Minnesota includes groundwater monitoring, and excavation and off-site treatment of contaminated soils. The site achieved construction completion with the signing of the Preliminary Close Out Report (PCOR) on November 11, 1994. The trigger for this five-year review was the PCOR on November 11, 1994. This review was performed as a matter of policy.

The assessment of this five-year review found that the soil OU remedy was constructed in accordance with the requirements of the Record of Decision (ROD). The soil OU remedy is functioning as designed.

A protectiveness determination of the groundwater remedy OU cannot be made at this time until further information is obtained. Further information will be obtained by taking the following actions: performing an additional round of direct push and groundwater monitoring well sampling, possibly installation of additional monitoring wells and possibly sampling the indoor air from residential homes for VOC's.

## Five Year Review Summary Form SITE IDENTIFICATION

**Site name (from WasteLAN):** South Andover Salvage Yards Site

**EPA ID (from WasteLAN):** MND 980609614

**Region:** 5 **State:** MN **City/County:** Anoka

**NPL status:** Final

**Remediation status:** Complete

**Multiple OUs\*** Yes

**Construction completion date:** 11/11/1994

**Has site been put into reuse?** YES

**Lead agency:** EPA

**Author name:** David Wilson

**Author title:** Remedial Project Manager **Author affiliation:** U.S. EPA, Region 5

**Review period:\*\*** 2/1/2001 to 9/15/2001

**Date(s) of site inspection:** 9/6/2001

**Type of review:** Post-SARA

**Review number:** 1 (first)

**Triggering action:** PCOR

**Triggering action date (from WasteLAN):** 11/11/1994

**Due date (five years after triggering action date):** 9/12/2001

### Issues:

Further study is needed to complete the delineation of the groundwater plume

Possible new exposure route of soil gas vapors in newly built residential homes above the VC plume

Determine whether the application of natural attenuation is appropriate at this site.

City of Andover has not granted access to PSDs for installing monitoring wells in VOC plume area.

### Recommendations and Follow-up Actions:

An additional round of direct push sampling is needed. A sampling plan for the round of is required by mid October and the sampling should happen before the end of November. Based on the results of the data the need for additional monitoring and the installation of additional monitoring wells will be evaluated

Residential homes may need to be monitored for VOC vapors in the basement or lower level of the homes.

Based on the results of the data a determination will be made as to whether the application of natural attenuation is appropriate at this site

EP will work with the PSD and the city of Andover to facilitate access for any required sampling

### Protectiveness Statement:

A protectiveness determination of the groundwater remedy OU cannot be made at this time until further information is obtained. Further information will be obtained by taking the following actions: performing an additional round of direct push and groundwater monitoring well sampling, possibly installing additional monitoring wells, possibly sampling indoor air of residential homes for VOCs. It is expected that these actions will take approximately until February 2002 to complete at which time a protectiveness determination will be made.

The soil OU remedy is expected to be protective of human health and the environment and exposure pathways that could result in unacceptable risks are being controlled.

### Long-term Protectiveness:

Long-term protectiveness of the remedial action will be verified by obtaining additional groundwater samples and VOC vapors sampling in residential homes if needed, to fully evaluate the achievement of groundwater contaminant cleanup level

**South Andover Site  
Andover  
Anoka County Minnesota  
First Five-Year Review Report**

**I. Introduction**

The purpose of this five-year review is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings and conclusions of reviews are documented in Five-Year Review reports. In addition, Five-Year Review reports identify issues found during the review, if any, and identify recommendations to address them.

The Agency is preparing this Five-Year Review report pursuant to CERCLA § 121 and the National Contingency (NCP). CERCLA § 121 states:

*If the President selects a remedy that results in any hazardous substance, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgement of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews*

The Agency interpreted this requirement further in the NCP: CFR §300.430(f)(4)(ii) states:

*If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less than every five years after the initiation of the selected remedial action.*

The United States Environmental Protection Agency (EPA), Region 5, conducted the five-year review of the remedy implemented at the South Andover Site Superfund Site in Andover Minnesota. This review was conducted by the Remedial Project Manager (RPM) for the entire site from February 2001 through September 2001. This report documents the results of the review.

This is the first five-year review for the South Andover Site. The triggering action for the policy review is the PCOR on November 11, 1994. The five-year review is required due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure.

## II. Site Chronology

**Table 1 – Chronology of Site Events**

EVENT	DATE
Waste disposal and salvage operations	1954-1981
Two fires involving tires	1988 & 1989
NPL Listing Proposed	1982
NPL Listing Final	1983
Site placed on the National Priorities List	1983
RI/FS Groundwater OU	1988
ROD signed for groundwater OU	5/1988
RI/FS Soil OU	7/1991
ROD groundwater OU amended	7/1992
ROD selecting soil OU remedy signed	12/1991
ROD for soil OU amended	5/1994
Consent Decree to perform the Remedial Design/Remedial Action (RD/RA) at the Site was executed between PRPs and U.S. EPA	8/1993
Construction commenced	7/1994
Preliminary Close Out Report signed	11/1994

## III. Background

### Physical Characteristics

The South Andover site, is located in the southern limits of Andover, in Anoka County, Minnesota, roughly 16 miles north northwest of Minneapolis and three miles northeast of Anoka, Minnesota (see Attachment 1). The site is composed of several parcels of land totaling approximately fifty acres. Bunker Lake Boulevard defines the northern extent of the site. Roughly 500 feet west of the eastern boundary is Jay Street. The site is located 3,000 feet from the Waste Disposal Landfill, another National Priorities List (NPL) site. The city of Andover has a population of approximately 15,000. The area ¼-mile north of the site is a residential neighborhood with about 200 homes. Further development has taken place to the west and south of the site.

### Land and Resource Use

Land use in the area is predominantly commercial and residential, and several auto salvage and repair yards were located at, and adjacent to, the site. The site contains part of a wetlands area with several small recreational lakes in the vicinity. The site overlies three shallow aquifers. A lower bedrock aquifer supplies the surrounding community with drinking water. From 1954 until 1981, the majority of these properties were involved with waste disposal and salvage operations. The site was used to store drums containing inks and solvents. An estimated three million tires covered the site, and there were two fires involving tires in 1988 and 1989.

The area has recently been developed into a light commercial park and a portion of the site has been developed into a residential housing subdivision. All of the residential housing around the site area is believed to be using the City of Andover water supply system.

### **History of Contamination**

Thousands of barrels of solvents and inks reportedly were burned in open pits on the site. A wetland on the site was used as a disposal area. In addition to transformers, about 200 drums of chemical waste and about 8,300 gallons of paint, adhesives, and greases in various size containers were stored on the site. Chemical wastes were spilled on the property. Transformers, salvaged electrical equipment, empty drums, and miscellaneous debris were evident on the site. Waste processing stopped in 1977, and waste was not accepted after 1978, when property was sold to Parmack, Inc. In 1980, the state issued notices of violation for improper storage and disposal of chemical wastes.

### **Initial Response**

Actions to limit waste handling operations at the site began in 1973 when Anoka County officials instructed one of the land owners to remove and dispose of chemical wastes stored at the site. The MPCA initiated actions to regulate identified waste handlers in 1980 and 1981. This site is being addressed through Federal and potentially responsible parties' (PRP) actions, NPL Listing History: Proposed Date: 12/30/82, Final Date: 09/08/83

### **Basis for Taking Action**

#### **Contaminants**

Hazardous substances that have been released at the site in each media include:

##### Soil

Antimony  
Lead  
Polychlorinated biphenyls (PCBs)  
Polycyclic aromatic hydrocarbons (PAHs)

##### Groundwater

Arsenic  
Chromium  
(PCE)  
Trichloroethylene (TCE)  
Toluene  
Vinyl chloride



Exposure to soil and groundwater are associated with significant human health risks, due to exceedances of EPA's risk management criteria for either the average or the reasonable maximum exposure scenarios. The risk was highest for exposures to groundwater due to the high concentrations of carcinogenic vinyl chloride that exceed State and Federal MCLs. Risks from exposure to soils were significant due to the presences of carcinogenic Polychlorinated biphenyls (PCBs) Polycyclic aromatic hydrocarbons (PAHs) and non-carcinogenic hazards due to high concentrations of antimony and lead.

#### **IV. Remedial Actions Remedy Selection**

ROD signed for groundwater OU	5/1988
ROD groundwater OU amended	7/1992
ROD selecting soil OU remedy signed	12/1991
ROD for soil OU amended	5/1994

Remedial Action Objectives (RAOs) were developed as a result of data collected during the Remedial Investigation to aid in the development and screening of remedial alternatives to be considered for the ROD. The RAOs for South Andover Site were divided into the following groups:

##### Source Control Responses Objectives

Prevent contaminated soils migration to groundwater, direct contact, ingestion, or inhalation above cleanup levels.

##### Management of Migration Response Objectives

Restore the aquifer by remediating the contaminated groundwater if required to achieve groundwater cleanup levels throughout the plume.

The major component of the source control remedy selected in the ROD is soil remediation.

The major components of the "management of migration" remedy selected in the ROD include, installation and operation of a ground water monitoring program for remedial action.

#### **Remedy Implementation**

The amended remedial action for the groundwater OU includes monitoring groundwater at the site; abandoning non-essential wells; and resampling wells if action levels are exceeded. The groundwater monitoring has indicated the presence of a vinyl chloride plume exceeding the Maximum Contaminant Levels (MCLs). The Performing Settling Defendants (PSD) submitted a Natural Attenuation Study on September 17, 1997.

The amended remedial action for the soil OU includes: excavating and transporting approximately 250 cubic yards of CPAH-contaminated soil from areas 1, 5, and 6 to a permitted off-site facility; and treating the material using either rotary incineration or low-temperature thermal desorption; collecting and treating ash and exhaust gases, as necessary, treating the carrier gas stream further with an afterburner or cooling in stages to condense the volatilized water and organics into liquids, followed by carbon filtration. The portion of the remedy that addresses the contaminated soils in areas 2, 3, 4, and 7 remained the same as in the original ROD. Soils from these areas were excavated and transported to an off-site industrial and/or commercial permitted landfill. Lastly, since site-specific groundwater parameters were affected when EPA updated the MCLs in 1993, the amendment also updated the MCLs for the various groundwater monitoring parameters.

### **System Operation/Operation and Maintenance**

The PSD group is conducting long-term monitoring and maintenance activities according to the operation and maintenance (O&M) plan.

The primary activities associated with the O&M include the following:

- Inspection of conditions of groundwater monitoring wells
- Environmental monitoring of the groundwater conditions

### **V. Progress Since Last Five-Year Review**

This was the first five-year review for the site.

### **VI. Five-Year Review Process**

#### **Administrative Components**

The South Andover Site Five-Year Review was performed by David Wilson, Remedial Project Manager (RPM) for the site. Nile Fallows of the MPCA assisted in the review of this Five-Year Report.

#### **Document Review**

This five-year review consisted of a relevant documents including O & M Records and monitoring data (see Attachment 5). Applicable groundwater cleanup standards, as listed in the ROD were reviewed.

## **Data Review**

### Groundwater Monitoring

Groundwater monitoring has been conducted at the South Andover Site since the early 1980s. In general the highest concentrations of contamination was during the first few years of the initial response 1983 to 1986. Vinyl chloride has been the most persistent chemical of concern for groundwater. Two direct push investigations in 1997 and 1998 showed a well-defined VOC plume with a maximum concentration of 220 u/L (see Attachment 2). The approximate size of the 1997-1998 VC plume exceeding the 2.0 u/L MCL concentration, was 3600 feet by 300 feet. Based on this data it was determined up to two additional monitoring well may be required. After two years of requests from the PSDs, the City of Andover has not yet provided access for installing groundwater monitoring wells in the area of the plume (see Attachment 3).

A February 2001 sampling of the only monitoring well located within the VC plume showed a concentration of 0.79 u/L (see Attachment 3). It is not known why there was such a large change (130 u/L down to 0.79 u/L) in the VC concentration at this monitoring well between 1998 and 2001.

The current location and concentration of the VC plume is in question because of sampling data obtained in February 2001. There is currently not enough temporal or spatial groundwater monitoring data to make any conclusions concerning the location or concentration of the VC plume.

### Soil Gas Monitoring

Residential homes have recently been built in areas where VC has been detected in the groundwater. Since there had been no known historical soil gas pathway to residential houses, no sampling of vapors within the homes had been performed in the past. The current location and concentration of the VC plume is in question because of sampling data obtained in February 2001.

The soil gas migration pathway from contaminated groundwater into residential homes is currently not well understood by EPA. However, contaminated groundwater has been shown at a number of sites to be able to contribute VOC vapors into residential homes above risk-based levels.

Additional groundwater sampling will determine if there is presently a VOC plume that could have a soil gas pathway into the homes. Residential homes located above VOC contaminated groundwater with a potential soil gas pathway that exceed risk levels will be sampled for VOC vapors.

## **Site Inspection**

A site inspection was conducted on September 6, 2001. The purpose of the inspection was to assess the protectiveness of the Remedy. It was discovered that a subdivision of residential housing has expanded to areas directly above where a VC plume has been detected. Up to 15 houses may be located in areas where the 1997-1998 VC plume occurs. These homes are not shown in the current groundwater monitoring reports or in the latest USGS topographic map of the area (see Attachment 4). No known indoor air sampling of the homes has occurred to date.

No significant issues have been identified regarding the condition of the groundwater monitoring wells.

## **Interviews**

Interviews were conducted with various parties connected with the site.

## **VII. Technical Assessments**

### Question A: Is the remedy functioning as intended by the decision documents?

The review of documents, ARARs, risk assumptions, and the results of the site inspection indicates that the remedy is functioning as intended by the ROD. The soil removal of contaminated soils has achieved the remedial objectives to minimize the migration of contaminants to groundwater and surface water and prevent direct contact with, or ingestion of contaminants in soil. Further study is needed to complete the delineation of the groundwater plume determine if indoor air sampling is required, which homes may need to be sampled, and to determine whether the application of natural attenuation is appropriate at this site.

### Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

There are newly built homes that may be directly above a VC plume. If the VC plume is still present, there may be a new soil gas pathway to receptors.

Further study is needed to complete the delineation of the groundwater plume to determine if indoor air sampling is required, which homes may need to be sampled, and whether the application of natural attenuation is appropriate at this site.

### Changes in Standards and To Be Considered

As the remedial work has been completed, most ARARs for soil contamination cited in the ROD have been met. ARARs that still must be met at this time and that have been evaluated include: the Safe Drinking Water Act (SDWA) (40 CFR 141.11-141.16) from which many of the groundwater cleanup levels were derived - [Maximum Contaminant

Levels (MCLs) and MCL Goals (MCLGs)], and ARARs related to post-closure monitoring. There have been no changes in these ARARs and no new standards or TBCs affecting the protectiveness of the remedy.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There are newly built residential homes that may be above a VC plume has been detected. If the VC plume is still present, there may be a new soil gas pathway to receptors. This new potential pathway could have an effect on the protectiveness of the remedy.

Further study is needed to complete the delineation of the groundwater plume to determine if indoor air sampling is required and which homes may need to be sampled.

No new contaminants have been detected in the groundwater. No ecological targets were identified during the baseline risk assessment and none were identified during the five-year review, and therefore monitoring of ecological targets is not necessary. All surface water samples analyzed found no contamination of surface water. No weather-related events have affected the protectiveness of the remedy. There is no other information that calls into question the protectiveness of the remedy.

Technical Assessment Summary

According to the data reviewed, the site inspection, and the interviews, the remedy is mostly functioning as intended by the ROD. Further study is needed to complete the delineation of the groundwater VOC plume, determine if indoor air sampling of residential homes is required, which homes may need to be sampled and whether the application of natural attenuation is appropriate at this site.

ARARs for soil contamination cited in the ROD have been met. There has been no changes in the toxicity factors for the contaminants of concern that were used in the baseline risk assessment, and there have been no changes to the standardized risk assessment methodology that could affect the protectiveness of the remedy. There is no other information that calls into question the protectiveness of the remedy.

## VIII. Issues

**Table 4 - Issues**

<b>Issue</b>	<b>Currently Affects Protectiveness (Y/N)</b>	<b>Affects Future Protectiveness (Y/N)</b>
Additional rounds of groundwater sampling are needed. Based on the results of the data, the need for additional monitoring and the installation of additional monitoring wells will be evaluated	<b>N</b>	<b>Y</b>
Possible exposure route of soil gas vapors in residential homes located above the VC plume	<b>Y</b>	<b>Y</b>
City of Andover has not granted access for installing monitoring well in VOC plume area	<b>N</b>	<b>Y</b>
Determine whether the application of natural attenuation is appropriate at this site.	<b>N</b>	<b>Y</b>

## IX. Recommendations and Follow-Up Actions

**Table 5 - Recommendations and Follow-Up Actions**

<b>Issue</b>	<b>Recommendations /Follow-up Actions</b>	<b>Party Responsible</b>	<b>Oversight Agency</b>	<b>Milestone Date</b>	<b>Affects Protectiveness (Y/N)</b>	
					<b>Current</b>	<b>Future</b>
An additional round of direct push and monitoring well sampling is needed.	A sampling plan for the round of is required.	PSD	EPA/State	10/2001	<b>N</b>	<b>Y</b>
An additional round of direct push and monitoring well sampling is needed.	Based on the results of the data the need for additional monitoring and the installation of additional monitoring wells will be evaluated.	PSD	EPA/State	10/2001	<b>N</b>	<b>Y</b>

Determine if an exposure route of soil gas vapors into residential homes above the VC plume is present.	Based on the results of the new groundwater data, the need for indoor air sampling will be determined and which residential homes that require sampling will be determined.	EPA/State	EPA/State	12/2001	Y	Y
Determine whether the application of natural attenuation is appropriate at this site.	Based on the results of the data a determination will be made as to whether the application of natural attenuation is appropriate at this site.	EPA/State	EPA/State	10/2003	N	Y
City of Andover has not granted PSDs access for installing monitoring well in VOC plume area.	EPA will work with the PSDs and the City of Andover to facilitate access for any required sampling.	EPA/PSDs	EPA/State	12/2001	N	Y

#### **X. Protectiveness Statement**

A protectiveness determination of the groundwater remedy OU cannot be made at this time until further information is obtained. Further information will be obtained by taking the following actions: performing an additional round of direct push and groundwater monitoring well sampling, possibly installing additional monitoring wells, possibly sampling indoor air of residential homes for VOCs. It is expected that these actions will take approximately until February 2002 to complete at which time a protectiveness determination will be made.

The soil OU remedy is expected to be protective of human health and the environment and exposure pathways that could result in unacceptable risks are being controlled.

Long-term protectiveness of the remedial action will be verified by obtaining additional groundwater samples and VOC vapors in residential homes if needed, to fully evaluate the achievement of groundwater contaminant cleanup levels.

#### **XI. Next Review**

The next review for the South Andover Site is required by September 2006, five years from the date of this review.

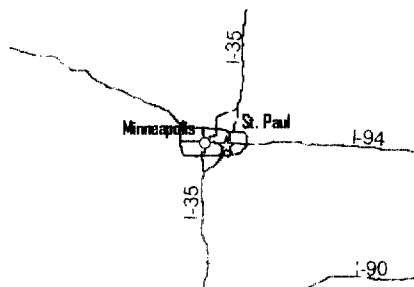


## ATTACHMENTS

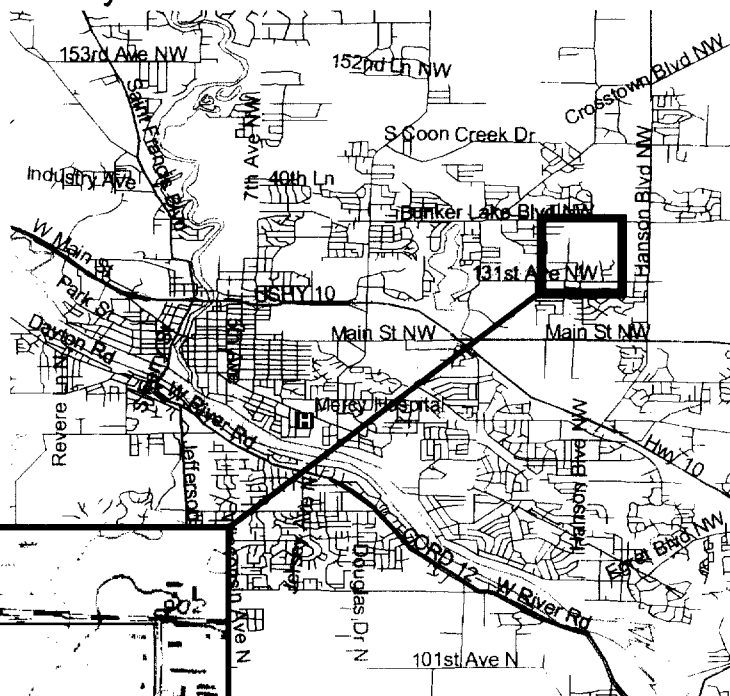
ATTACHMENT 1  
Site Location Map

# Location of the South Andover Superfund Site

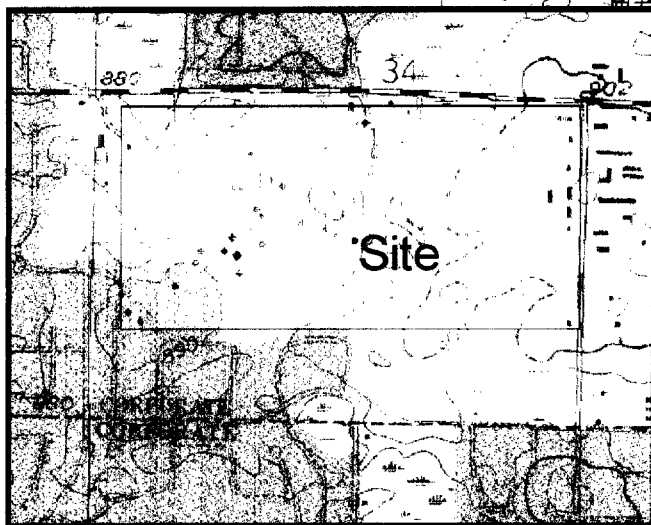
## 1. State of Minnesota



## 2. City of Andover



## 3. The South Andover Superfund Site



GEFA

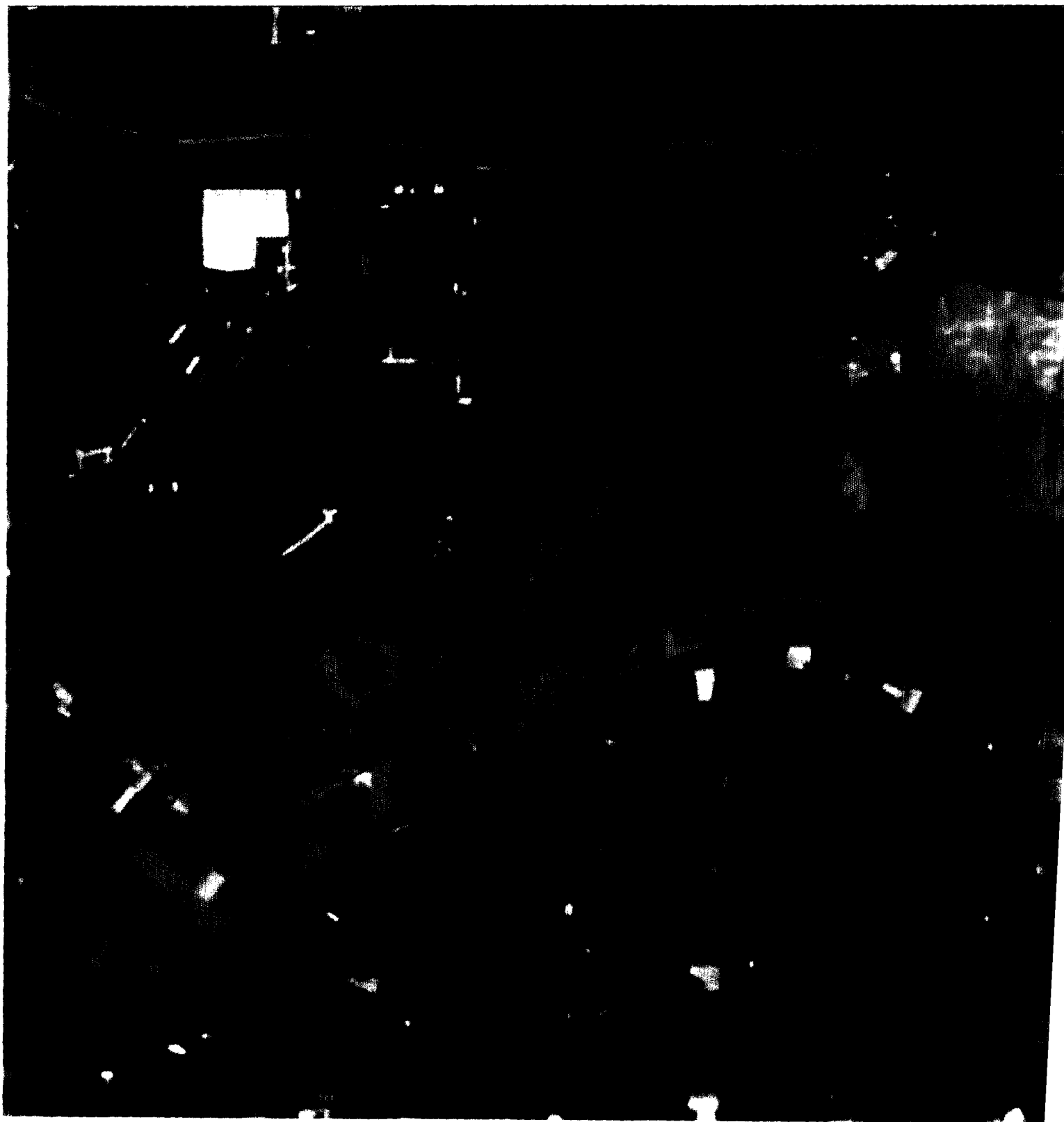
Region 10 Superfund Mapper

## ATTACHMENT 2

### Vinyl Chloride Plume Location

# South Andover Superfund Site

## Vinyl Chloride Plume Under Residential Homes



Vinyl Chloride Sampling Locations  
Jan. 1997 - 1998

GEFA

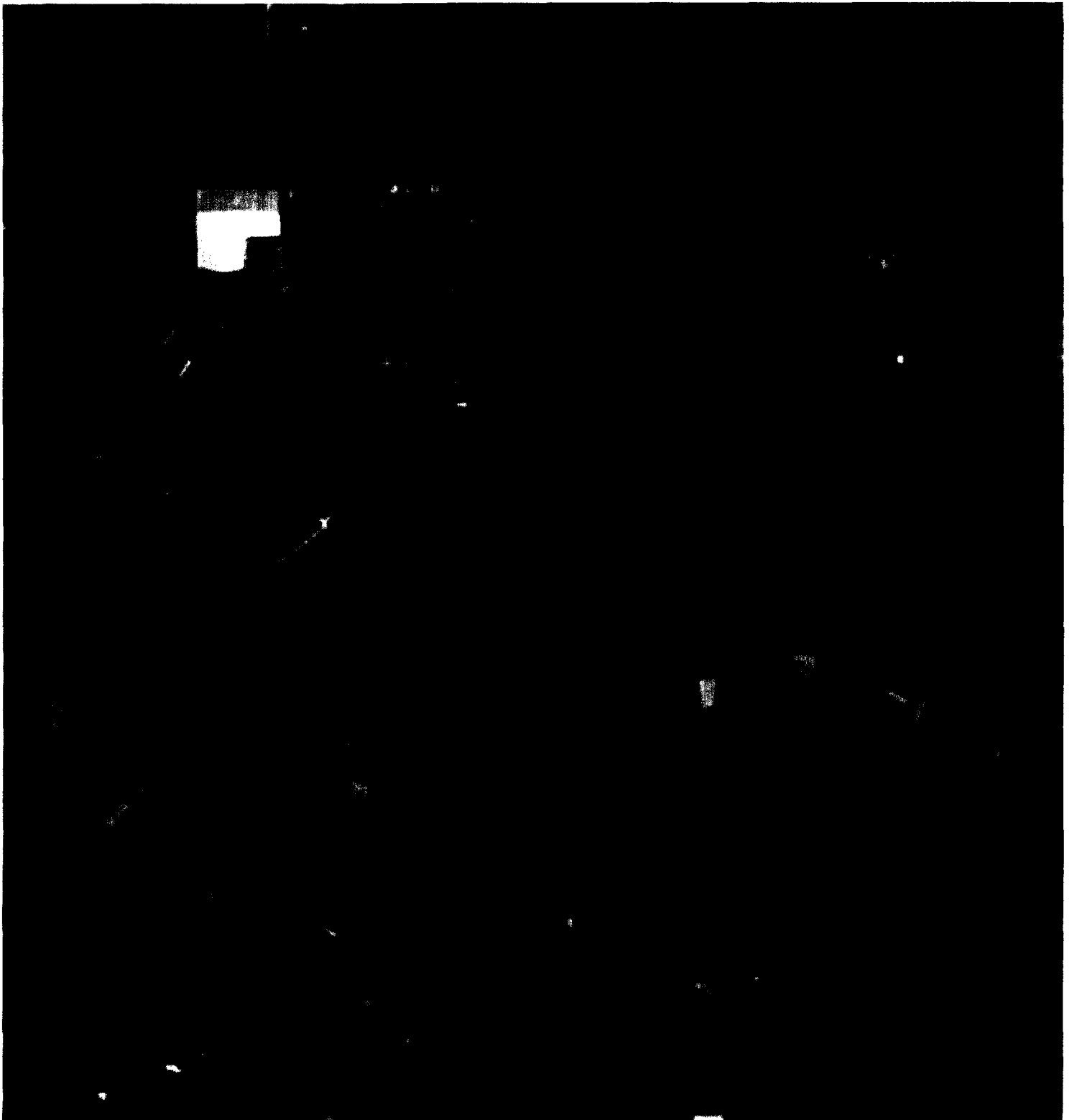
Region 5 Superfund Map

## ATTACHMENT 3

### Location of Proposed Monitoring Wells and Vinyl Chloride Data from 2/2001

# South Andover Superfund Site

## Vinyl Chloride Near Residential Homes



○ Proposed Monitoring Wells  
Have Not Been Installed

⊕ Vinyl Chloride in Monitoring  
Well Sampled on 2/2001

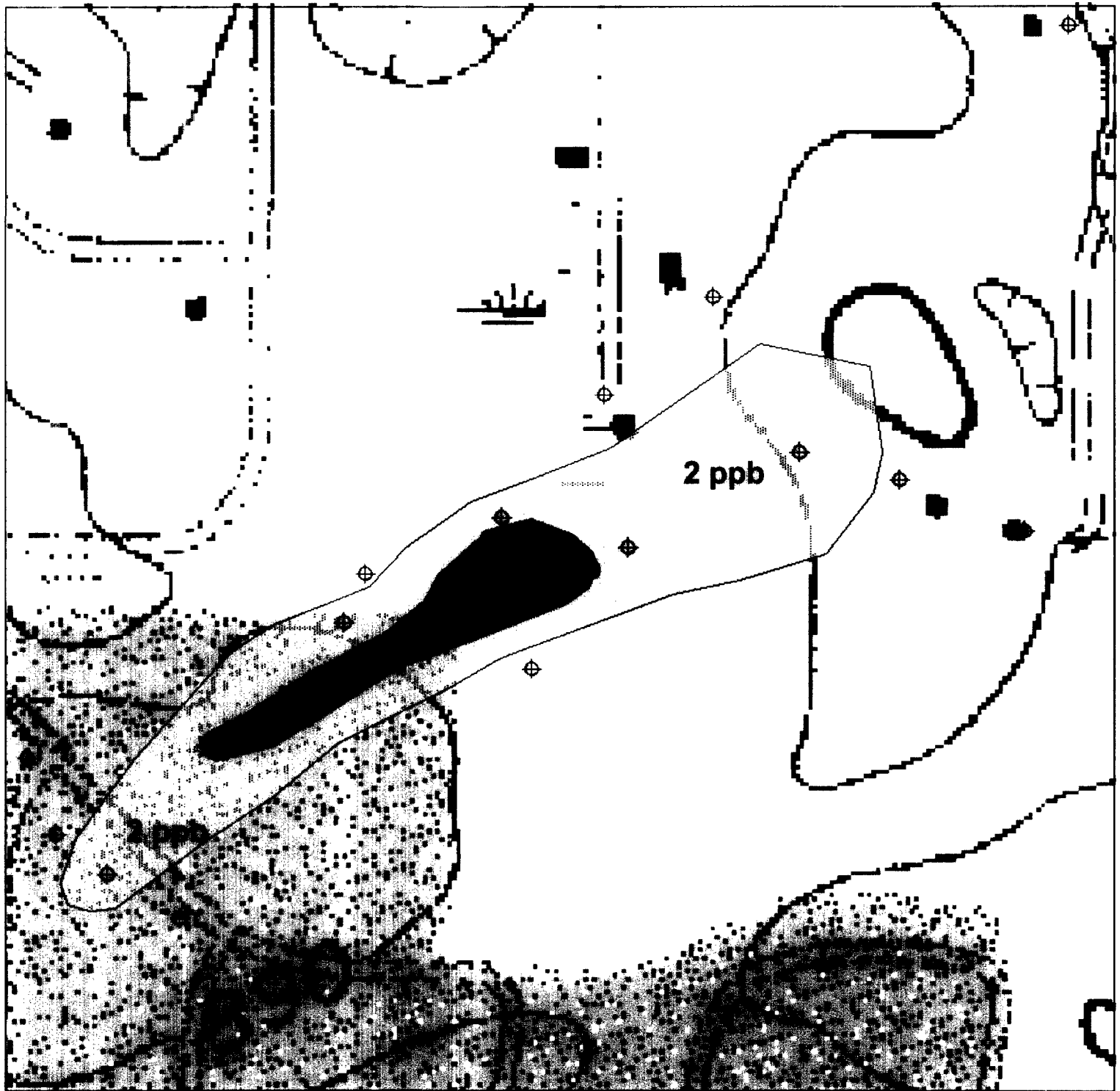
## ATTACHMENT 4

Current Maps Do Not Show Homes Near Plume



# South Andover Superfund Site

Latest USGS Topo Map or Monitoring Reports Do Not Show New Residential Homes Located Over Vinyl Chloride Plume



⊕ Vinyl Chloride Sampling Locations  
From 1997-1998

SEPA

Regional Environmental Assessment Map

## ATTACHMENT 5

### **List of Documents Reviewed**

South Andover Site Remedial Design  
South Andover Site Operations & Maintenance Plan  
South Andover Site PSDs/EPA Settlement Agreement  
South Andover Site Groundwater Monitoring Reports  
South Andover Site Superfund Site Record of Decision

SUPERFUND DIVISION  
REMEDIAL ENFORCEMENT RESPONSE BRANCH

*FIVE-YEAR REVIEW REPORT*

SITE NAME: South Andover Site

**INITIAL & DATE**

RPM:

David Wilson DW 9/24/01

FIVE-YEAR REVIEW  
COORDINATOR  
(Rosita Clarke):

RCM 9-27-01

SECTION CHIEF:

Mj.O 9/26/01 w/comments

JAMES N. MAYKA:

JN 9/27/01 w/minor corrections

WILLIAM E. MUNO:

WEM 9/28/01

RETURN TO:

David Wilson

PHONE#

886-1476

**COMMENTS:**